

**WHAT IS CLAIMED IS:**

1. An alignment apparatus for aligning a planar optical wave-guide element and an optical fiber block, comprising:

- 5           a lower plate in a substantially horizontal orientation;
- a sliding table mounted on the lower plate capable of a horizontal displacement on the lower plate;
- an upper plate mounted to the sliding table; and,
- a jig disposed on the upper plate and fixed to rotational means capable of rotation
- 10   about the upper plate for holding the optical fiber block.

2. The alignment apparatus according to claim 1, wherein the rotational means comprises a rotation shaft passing through a bearing pressed into the upper plate.

- 15           3. The alignment apparatus according to claim 2, further comprising a resilient means for providing a resilient force upon the sliding table in a direction opposed to the force applied to the sliding table when the optical fiber block comes into contact with the planar optical wave-guide element.

- 20           4. The alignment apparatus according to claim 3, further comprising a displacement sensor for sensing a traveling distance of the sliding table on the lower plate.

5. The alignment apparatus according to claim 4, further comprising a locking axle movably mounted through the lower plate and capable of moving in a horizontal direction to contact a rear side of the jig in place free from all displacement and rotation.

5        6. The alignment apparatus according to claim 5, further comprising a locking driver for moving the locking axle.

7. The alignment apparatus according to claim 6, further comprising a spherical member formed on the jig for causing the jig to lock in place free from all displacement and  
10 rotation when contacted by the locking axle.

8. The alignment apparatus according to claim 7, further comprising a bracket provided on the jig surface for resting the optical fiber block thereon and a supporting part that traverses on a holding part of the bracket for supporting one side of the optical fiber  
15 block held on the holding part of the bracket.

9. A method of aligning a planar optical wave-guide element and an optical fiber block, comprising the step of providing a means for simultaneously aligning them about the x and y rotational axes.

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10. The method according to claim 9, wherein the step of providing a means for simultaneously aligning a planar optical wave-guide element and an optical fiber block

about the x and y rotational axes comprises providing a rotation shaft with a jig fixed thereon so that the jig may freely rotate as a horizontal force is applied to the jig.

11. The method according to claim 10, further comprising the step of providing a  
5 means for accommodating optical fiber blocks of different sizes to be used on a single jig.

12. The method according to claim 11, wherein the step of providing a means for accommodating optical fiber blocks of different sizes to be used on a single jig comprises providing a supporting part for the jig that supports one side of the fiber optic block.

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13. The method according to claim 12, wherein the supporting part traverses on a locking part of a jig bracket so that the jig may accommodate fiber optic blocks of different sizes.